

Family Chauliodontidae

852

Body very long, compressed. Head much compressed, elevated. Mouth large. Teeth in both jaws with excessively long fang like canines. Maxillary enters edge of upper jaw. Series of teeth on each palatine. Small mental barbel. Opercles incomplete. Interopercle rudimentary. Gill openings very wide. No pseudobranchiae. Body covered with large, thin, caducous scales or sometimes naked. Photophores present. Dorsal and anal moderate, former inserted before ventrals or far premedian. Dorsal and ventral

adipose fins present. Anal far posterior. Caudal forked.

Deep sea fishes, rather small in size, noted for their enormous fang like teeth.

Genus Chauliodus Schneider

Chauliodus Schneider, Syst. Ichth. Bloch,
1801, p. 430. Type Chauliodus sloani
Schneider, monotypic.

Vipera (not Linnaeus) Catesby, Nat. Hist.
Carolina Fla. Bahamas, vol. 2, 1771, p. 119.

Type Vipera marina Catesby, monotypic.
(Inadmissible.)

Chauliodes Risso, Hist. Nat. Eur. Mériid.,
vol. 3, 1826, p. 441. Type Chauliodes
schnneideri Risso, monotypic.

Leptodes Swainson, Nat. Hist. Animals,
vol. 1, 1838, p. 303;
vol. 2, 1839, p. 303. Type Chauliodus

sloani Schneider, virtually. Leptodes
Swainson proposed to replace Chauliodus Schneider.

Body compressed. Head short, bones thinly ossified. Snout very short. Eye moderate. Mouth extremely wide, cleft reaching beyond eye and lower jaw projecting. Premaxillaries with 4 long fang-like canines each side. Mandible with pointed, wide set teeth, anterior exceedingly long. None greatly enlarged teeth received within mouth. Maxillaries with fine teeth. Palatines with single series of small pointed teeth. No teeth on tongue. Opercle very narrow.

Branchiostegals numerous. Dorsal high, anterior. Adipose fin moderate, sometimes fimbriate, opposite short low anal. Caudal and pectorals moderate. Ventral large.

Analysis of species

a.¹ Dorsal inserted close behind pectoral base; ventral photophores 29 between ventral and anal. dentatus.

a.² Dorsal inserted at first fourth between pectoral and ventral origins; ventral photophores 22 to 27 between ventral and anal. stomias.

a.³ Dorsal inserted at first $\frac{3}{7}$ between pectoral and ventral origins.

b.¹ Ventral photophores 22 to 25 between ventral and anal origins; depth (of head) 7 to 8. danae.

b.² Ventral photophores 20 to 23 between ventral and anal origins; depth (of head) 6 to 7. barbatus.

Chauliodus dentatus Garman

Chauliodus dentatus Garman, Mem.

Mus. Comp. Zool., vol. 24, 1899, p. 273.

Society Islands. — Brauer, Deutsch.

Tiefsee Exped. Valdivia, vol. 15, Tiefsee-Fische,

1906, p. 40 (diagnosis in key). — Fowler,

Mem. Bishop Mus., vol. 10, 1928, p. 34

(type). — Regan and Trewavas, Danish

Dana Exped. Oceanogr. Rep., no. 5, May 30,

1929, p. 31 (reference).

Depth $7\frac{4}{5}$; head $6\frac{1}{5}$, width $1\frac{1}{3}$.

Snout 4 in head from snout tip; eye

4, equals snout; maxillary extends

well back in head, expansion 2 in

eye, equals head from snout tip;

859

upper teeth with 5 long slender fangs each side, second pair longest or slightly longer than eye; 14 compressed lanceolate maxillary teeth, alternating as many small ones; row of few small teeth on each palatine, none on vomer; mandible with pair of large fangs twice eye, second pair $\frac{1}{3}$ as short, third pair little less $\frac{1}{2}$ as short, then 3 small pairs and finally 7 short low uniform pointed teeth; interorbital 5 in head from snout tip, depressed.

Scales 64 in median lateral series.

Upper or lateral photophores 19 between pectoral and ventral, 29 between ventral and anal. Lower or ventral series 8 on isthmus, 29 between pectoral and ventral, 14 between ventral and anal.

D. 6, begins close behind pectoral

860

base; A. 13; pectoral rays 14 or 15;
ventral rays 7.

Nearly uniform dusky brown.
Length 197 mm. of broken type.
Pacific Ocean.

The above from my reexamination
of the type, though the fin rays as
given by Garman, as my counts in
1928, erroneous.
likely

Chauliodus stomias (Shaw and Hodder)

Esox stomias Shaw and Hodder, Nat.
Miscellany, vol. 9, 1798, in index as
pl. 344 (on Vipera marina Catesby,
Nat. Hist. Carolina Fla. Bahamas,
vol. 2, 1771, p. 119, pl. 19, Gibraltar), -
Shaw, General Zool., vol. 5, 1800, p.
120, pl. 111 (on Catesby).

Chauliodus sloani Schneider, Syst.
Ichth. Bloch, 1801, p. 430. Atlantic
(as Vipera marina Catesby, Hist. Nat. Carolina,
Fla. Bahamas, vol. 2, 1771, p. 119, pl. 19,
Gibraltar). — Valenciennes, Hist. Nat.
Pois., vol. 22, 1849, p. 285, pl. 647 (Sicily).
— Jordan and Gilbert, Bull. U. S. Nat. Mus.,
no. 16, 1882, p. 285 (compiled). — Vaillant,
Expéd. Sci. Travailleur et Talisman,
Pois., 1888, p. 102 (coast of Morocco,
1123 meters). — Goode and Bean, Oceanic
Ichth., 1895, p. 96 (Georges Bank; Old
Bahama Channel, 500 fathoms; N. 13° to
39° W. 62° to 87°, 435 to 2069 fathoms). —
Garman, Mem. Mus. Comp. Zool., vol.

24, 1899, p. 274 (diagnosis). — Regan,
Trans. Linn. Soc. London, series 2, vol.
12, Zool. No. 14, 1908, p. 218 (north of
Peros Atoll to 200 fathoms). — Fowler,
Proc. Acad. Nat. Sci. Philadelphia, 1911
(1912), p. 560 (Italy).

Chauliodus sloanii Günther, Cat.

Fishes Brit. Mus., vol. 5, 1865,

p. 392 (type; Messina); Rep.

Voy. Challenger, vol. 22, 1887, p.

179 (south of New Guinea, 800 fathoms; north of New Guinea

2000 fathoms; south of Japan,

565 fathoms; mid Atlantic

2500 fathoms; north east of

Bermuda 2575 fathoms). —

Alcock, Ann. Mag.

Asiatic Soc. Bengal, vol. 65, pt. 2,
1896, p. 334 (reference).

Thaumatozomias atrox Goode and
Bean, Oceanic Ichth., 1895, pl. 37,
fig. 141 (copied).

Nat. Hist., ser. 6, vol. 4, 1889, p. 399 (Bay of Bengal and Gulf of Manaar, in 597 to 1590 fathoms); ser. 6, vol. 8, 1891, p. 127 (Laccadive Sea, Andaman Sea, Bay of Bengal); ser. 6, vol. 10, 1892, p. 355 (Laccadive Sea). — Goode and Bean, Oceanic Ichth., 1895, pl. 31, fig. 115. — Aloock, Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, 1896, p. 332 (Bay of Bengal, in 1590 fathoms; Gulf of Manaar, 597 fathoms; Laccadive Sea); Cat. Deep Sea Fish. Indian Mus., 1899, p. 144 (above materials).
~~in German,~~

Chauliodus sloanei Branner, Deutsch.

Tiefsee Exped. Valdivia, vol. 15, Tiefsee-Fische, 1906, p. 40, text figs. 7-9 (^{Gulf of} ~~Atlantic~~ ~~Guinea~~ ~~ports~~

~~off~~, 2000 meters; south of Crook Keeling; off Sumatra; Bengal Bay; south of Ceylon; between Seychelles and Zanzibar; Gulf of Aden; 594 to 2200 meters). — Jugmayer, Rés.

Camp. Sci. Monaco, vol. 35, 1911, p. 63 (N. 27° to 43° W. 7° to 31°, 500 to 5000 meters). —

Murray and Hjort, Depths of the Ocean, 1912, p. 611, fig. 454 (Plymouth to Gibraltar, thence to Gran Canaria, thence to Cape Bojador, Gran Canaria to Fayal, Azores to Newfoundland, 2000 to 5035 meters). —

Pappenheim, Deutsch. Südpolar Exped.,

vol. 15, pt. 2, 1914, p. 167 (N. $24^{\circ}41'W$.
 $32^{\circ}21'$, 20 meters, south west of Azores).

— Roule, Rés. Camp. Sci. Monaco, vol.

52, 1919, p. 26 (N. $43^{\circ}21'E$. $7^{\circ}18'15''$, 1838

meters; N. $36^{\circ}46'W$. $26^{\circ}41'$, 3250 meters,

Azores). — Barnard, Ann. South African

Mus., vol. 21, pt. 1, June 1925, p. 141 (off

Cape Point, East London and Durban, 300 to

790 fathoms). — Regan and Trewavas,

Danish Dana Exped. Oceanogr. Rep., no. 5,

May 30, 1929, p. 32, fig. 24 (Mediterranean,

Atlantic, Caribbean Sea, Japan,

? Australia). — Horman, Discovery Rep.,

vol. 2, 1930, p. 308 (S. 0° to 33° and N. 6° to 13°
E. 5° to 16° to W. 00° to 18° ; 125 to 1000 meters).

Leptodes sloanii Swainson, Nat. Hist. Animals,
vol. 2, 1839, p. 298 (reference).

Chauliodus setinotus Schneider, Syst.
Ichth. Bloch, 1801, pl. 85. — Bonaparte,

↑ Iconogr. Fauna Italia, Pesci, vol. 3,
pt. 1, fasc. 30, 1841, no pagination, pl.,
fig. 2 (Italy).

Stomias schneideri Cuvier, Règne
Animal, Poiss., Ed. Ill., 1839, p. 97
(reference to plate).

{ Stomias boa (not Schneider) Cuvier,
Règne Animal, Poiss., Ed. Ill., 1839,
pl. 97 (error).

Leptodes siccus Swainson, Nat. Hist.
Animals, vol. 1, 1838, p. 304, fig. 65.

Isthmus of Messina.

Chauliodus setinotus Schneider, Syst.
Ichth. Bloch, 1801, pl. 85. — Bonaparte,
Chauliodes schneideri Risso, Hist. nat.
Eur. mérid., vol. 3, 1826, p. 442, pl.
14, fig. 37. Nice.

Stomias schneideri Cuvier, Règne
Animal, Poiss., Ed. Ill., 1839, p. 97
(reference to plate).

{ Stomias boa (not Schneider) Cuvier,
Règne Animal, Poiss., Ed. Ill., 1839,
pl. 97 (error).

Leptodes sicculus Swainson, Nat. Hist.
Animals, vol. 1, 1838, p. 304, fig. 65.

Isthmus of Messina.

~~Chauliodes macouni Bean~~

Chauliodes macouni Bean, Proc. U. S. Nat. Mus., vol. 13, 1890, p. 44. N. $51^{\circ}23'$ W. $130^{\circ}34'$, 876 fathoms, off Cape St. James, Queen Charlotte Islands. ✓ Goode, and — Gilbert, Rep. U. S. Fish Comm., pt. 19, 1893 (1895), p. 465 (off California, 280 to 620 fathoms).

— Branner, Deutsch. Tiefsee Exped. Valdivia, vol. 15, Tiefsee-Fische, 1906, p. 40 (diagnosis in key). — Gilbert, Proc. U. S. Nat. Mus., vol. 48, 1915, p. 321 (off California, 645 to 2259 fathoms).

Chauliodes maccouni Garman, Mem. Mus. Comp. Zool., vol. 24, 1899, p. 274 (diagnosis).

~~Chauliodes macouni Bean~~

Chauliodes macouni Bean, Proc. U. S.

Nat. Mus., vol. 13, 1890, p. 44. N. $51^{\circ}23'$

W. $130^{\circ}34'$, 876 fathoms, off Cape St. James,

Queen Charlotte Islands. ✓ Goode and

Bean, Oceanic Ichth., 1895, p. 513 (reference).

— Jordan and Evermann, Bull. U. S. Nat.

Mus., no. 47, pt. 1, 1896, p. 585 (compiled).

— Brauer, Deutsch. Tiefsee Exped. Valdivia,

vol. 15, Tiefsee-Fische, 1906, p. 40 (diagnosis

in key). — Gilbert, Proc. U. S. Nat. Mus.,

vol. 48, 1915, p. 321 (off California, 645

to 2259 fathoms).

Chauliodes macouni Garman, Mem. Mus.

Comp. Zool., vol. 24, 1899, p. 274 (diagnosis).

~~Chauliodus pammelas Alcock~~

Chauliodus pammelas Alcock, Ann.

Mag. Nat. Hist., ser. 6, vol. 10, 1892, p.

355. Laccadive Sea, h. Lat. $8^{\circ}49' E$. Long.

$73^{\circ}18'45''$, in 1370 fathoms. — Goode and

Bean, Oceanic Ichth., 1895, p. 96 (reference).

— Alcock, Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, 1896, p. 332 (reference); Cat.

Deep Sea Fishes Indian Mus., 1899, p.

— Garman, Mem. Mus. Comp. Zool., vol. 24,

1899, p. 274 (diagnosis). — Alcock, Illustr.

Zool. Investigator, Fishes, pt. 7, 1900, pl.

— Pappenheim, Deutsch. Südpolar Exped., vol. 15, pt. 2, 1914, p. 167 (no locality).

(Leden). — Regan and Trewavas, Danish

~~Chauliodes pammelas Alcock~~

Chauliodes pammelas Alcock, Ann.

Mag. Nat. Hist., ser. 6, vol. 10, 1892, p.

355. Laccadive Sea, h. Lat. $8^{\circ}49'0''$ E. Long.

$73^{\circ}18'45''$, in 1370 fathoms. — Goode and

Bean, Oceanic Ichth., 1895, p. 96 (reference).

— Alcock, Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, 1896, p. 332 (reference); Cat.

Deep Sea Fishes Indian Mus., 1899, p.

145 (Arabian Sea, in the neighbourhood

of Minnikoy, in 1370 fathoms). ~~Illustrated~~

Zool. Investigator, Fishes, pt. 7, 1900, pl.

30, fig. 4. — Brauer, Deutsch. Tiefsee

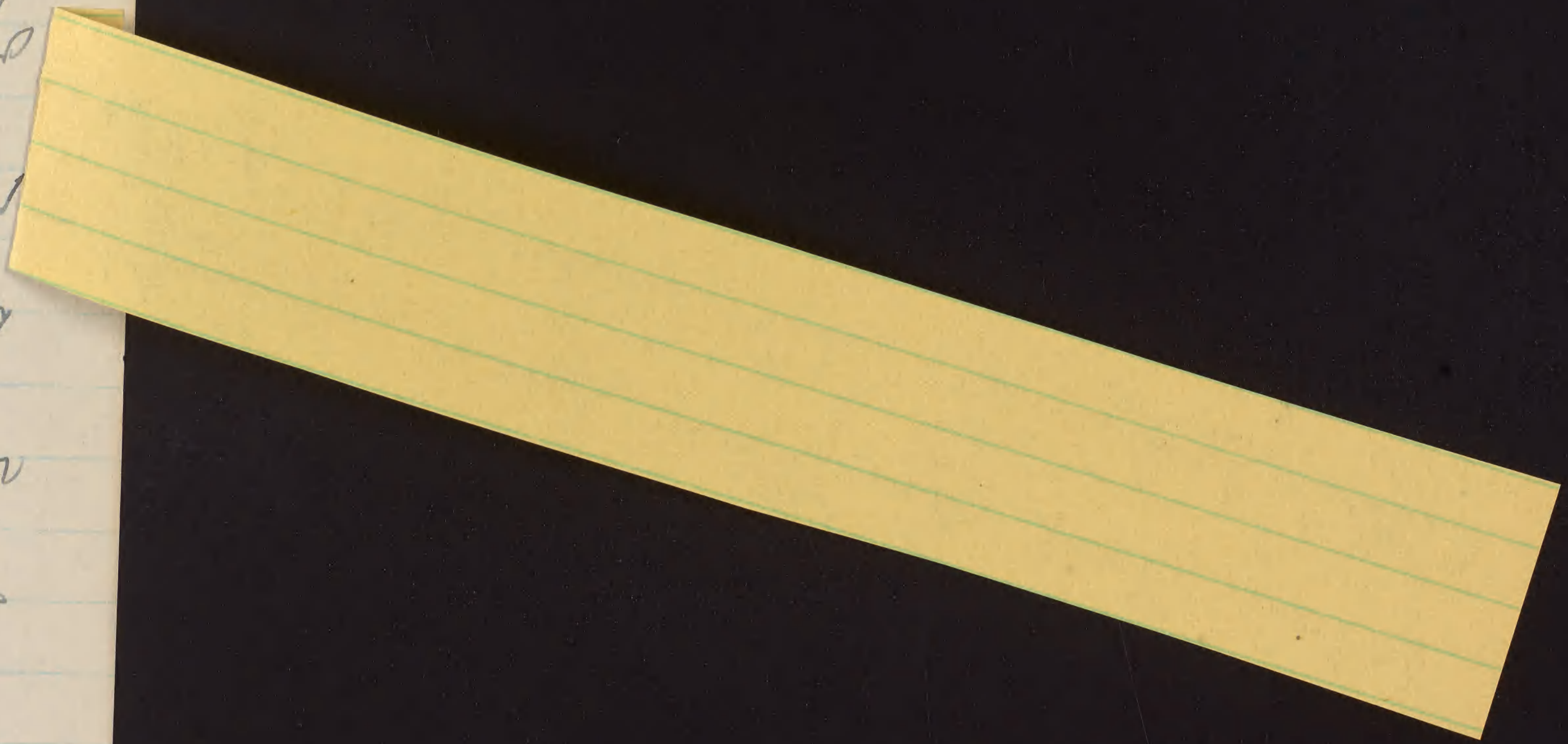
Exp. Valdivia, vol. 15, Tiefsee-Fische, 1906,

pl. 42 (N. $13^{\circ}2'8''$ E. $46^{\circ}41'6''$, 1200 meters, Gulf of

Oeden). — Regan and Trewavas, Danish

30, fig. 4
17, pl. 23, fig. 1. near Desroches Atoll,
Indian Ocean, in 0 to 750 fathoms.
... series 1, vol. 1, 1901-1902, p. 17.

Beam, de
— Alcock
vol. 65, pt.
Deep Sea
145 (Knab
of minute
goat. 3 mt



Lana Exped. Oceanogr. Rep., No. 5,
May 30, 1929, p. 31 (reference).

~~Chauliodus emmelas~~ Jordan and Starbuck
Chauliodus emmelas Jordan and Starbuck,
Bull. U. S. Fish Comm., vol. 22, 1902 (1904),
p. 579, pl. 1, fig. 2. Sagami Bay in 120
to 265 fathoms, Japan.

~~Chauliodus dannewigi~~ McCulloch

? Chauliodus dannewigi McCulloch,

Biol. Results Endeavour, vol. 4, pt. 4,

Oct. 31, 1916, p. 179, pl. 3. Off Cape

Everard, Victoria, in 180 to 240 fathoms.

874

Depth $6\frac{1}{2}$ to 8; head 5 to 7, width $2\frac{1}{2}$ to 3. Snout $3\frac{1}{5}$ to $4\frac{1}{4}$ in head from snout tip; eye $3\frac{1}{5}$ to $4\frac{4}{5}$, little greater than snout in young to $1\frac{1}{5}$ with age, little greater than interorbital in young to $1\frac{1}{3}$ with age; maxillary reaches preopercle ridge; 1 to $1\frac{1}{10}$ in head from snout tip; mandibles with (4 above and 5 below) pairs of large canines (sometimes an extra tooth may appear so tooth is double), first enormous, slender, curved slightly back and when mouth closes extend up along each side of snout well above upper eye edge; upper teeth also project along front of

mandible or outside lower jaw;
each palatine with 7 short straight
conic teeth; interorbital $3\frac{1}{4}$ to $4\frac{1}{3}$,
abruptly declivous behind though
concave medially. Gill rakers minute
obsolete denticles or not developed;
gill filaments equal eye.

Scales (pockets) 49 to 52 in median
lateral series; 7 transversely at dorsal
origin. Scales very caducous, all fallen.

Single crescentic series of 13 or 14
small infraorbital photophores, first
largest and begins in small dark
pigment blotch opposite front eye edge,
entire series close to eye and otherwise

subequal. Below and directly opposite eye center, close to maxillary edge, rather large conspicuous photophore.

Maxillary, cheek and opercles with other small photophores. Moderately large photophore between each.

branchiostegal ray. Photophores in upper ventral row from isthmus to pectoral 10 or 11, from pectoral to ventral 19 or 20, from ventral to anal 23 to 25, from anal to caudal 10. Abdominal photophores in double median row, preventral 19, postventral 23 to 26, many other minute photophores scattered over rest of body.

D. 6 or 7, first ray long filament extended beyond ventral origin or $2\frac{1}{2}$ to $4\frac{1}{4}$ in combined head and body to caudal base; ventral $4\frac{4}{5}$ to $7\frac{1}{4}$; adipose fin $1\frac{1}{5}$ to $1\frac{1}{2}$ in total head length, origin before anal fin origin; A. II, 10, opposite adipose fin, first branched ray 2 to $2\frac{1}{10}$; caudal $1\frac{1}{3}$ to $1\frac{1}{2}$, forked; least depth of caudal peduncle 5 to $5\frac{1}{4}$; pectoral $1\frac{1}{4}$ to $1\frac{2}{5}$.

Variably pale to dark or dusky brown, with silvery to leaden gray tinge in some specimens, especially on belly. Iris silvery or gray. Fins pale to whitish.

I cannot find that the nominal Chauliodus macouni Bean is distinct. The distinctions set forth by Jordan and Evermann as the smaller head for the Atlantic form (sloanei) as 7 and 6 for the Pacific form (macouni) surely do not hold.

Chauliodus emmelas is only known from the type. Though described as more slender than C. stomias its variation in this respect, both as to the head and depth are equalled in my series of C. stomias. The scales are given "about 60" though my count of the scale pockets show them nearer 54.

2101. D. 5216. *Anima Sola* Island,
N. 44° W., 29.50 miles (N. $12^{\circ} 52' E.$ 123°
 $23' 30''$), between Burias and Luzon.

In 215 fathoms. April 22, 1908. Length
182 mm.

3481. D. 5528. Balicasag Island,
(C.), N. 15° E. 5.8 miles (N. $9^{\circ} 24' 45'' E.$
 $123^{\circ} 39' 15''$), between Siquijor and
Bohol. In 439 fathoms. August 11, 1909.
Length 130 mm.

3525. D. 5424. Cagayan Island (S.),
S. 11° W. 3.4 miles (N. $9^{\circ} 37' 5'' E.$ $121^{\circ} 12' 37''$),
Jolo Sea. In 340 fathoms. March 31, 1909.
Length 168 mm.

4315. D. 5671. Chenoki Point, S. 31° E.,
42.5 miles (N. $1^{\circ} 5' E.$ $118^{\circ} 56'$), Macassar
Strait. In 960 fathoms. December 30,
1909. Length 143 mm.

880

4000. D. 5365. Cape Santiago Light,
N. 73° W., 6.7 miles (N. $13^{\circ}44'24''$ E. $120^{\circ}45'$
 $30''$), Balayan Bay, Luzon. In 214 fathoms.
February 22, 1909. Length 168 mm.

↑ D. 5300. China Sea (N. $20^{\circ}31'$ E. $115^{\circ}49'$),
vicinity southern Luzon. In 265 fathoms.
August 8, 1908. Length 130 mm.

August 1, 1909. Length 182 mm.

3151. D. 5450. East Point (Batan Island),
S. 36° E., 9.2 miles (N. $13^{\circ}23'15''$ E. $124^{\circ}00'30''$),
east coast of Luzon. In 408 fathoms.
June 4, 1909. Length 235 mm.

3365 and 3366. D. 5366. Escarceo
Light, S. 5° E., 7.7 miles (N. $13^{\circ}39'$ E. $120^{\circ}58'$
 $30''$), Batangas Bay, Luzon. In 240 fathoms.
February 22, 1909. Length 135 to 155 mm.
2 examples.

880

4000. D. 5365. Cape Santiago Light,
N. 73° W., 6.7 miles (N. $13^{\circ}44'24''$ E. $120^{\circ}45'$
 $30''$), Balayan Bay, Luzon. In 214 fathoms.

February 22, 1909. Length 168 mm.

2123. D. 5492. Dinata Point (W.),
S. 45° W., 15.2 miles (N. $9^{\circ}12'45''$ E. $125^{\circ}20'$),
between Leyte and Mindanao. In 735 fathoms.

August 1, 1909. Length 182 mm.

3151. D. 5450. East Point (Batan Island),
S. 36° E., 9.2 miles (N. $13^{\circ}23'15''$ E. $124^{\circ}00'30''$),
east coast of Luzon. In 408 fathoms.
June 4, 1909. Length 235 mm.

3365 and 3366. D. 5366. Escarceo
Light, S. 5° E., 7.7 miles (N. $13^{\circ}39'$ E. $120^{\circ}58'$
 $30''$), Batangas Bay, Luzon. In 240 fathoms.
February 22, 1909. Length 135 to 155 mm.
2 examples.

3268. D. 5636. Gomomo Island (E.),
N. 46° W., 6 miles (S. $1^{\circ}55'$ E. $127^{\circ}42'30''$),
Pitt Passage. In 1262 fathoms.
December 31, 1909. Length 183 mm.

2734. D. 5201. Limasawa Island (E.),
S. 1° E., 14.80 miles (N. $10^{\circ}10'$ E. $125^{\circ}4'15''$),
Sogod Bay, southern Leyte. In 554 fathoms.
April 10, 1908. Length 120 mm.

4284. D. 5203. Limasawa Island (S.),
S. 38° W., 5.50 miles (N. $9^{\circ}58'$ E. $125^{\circ}7'40''$).
In 775 fathoms. April 10, 1908. Length 149 mm.

1950. D. 5233. Limasawa Island (S.),
S. 70° E. 19.50 miles (N. $10^{\circ}00'22''$ E. $124^{\circ}45'06''$),
between Bohol and Leyte. May 7, 1908.
Length 213 mm.

882

5690. D. 5246. Luban Island (N.),
S. 58° W., 4.6 miles (N. $6^{\circ} 29' 15''$ E. $126^{\circ} 18' 45''$), Pacific Ocean, east coast of Mindanao.

→ May 15, 1908. Length 126 mm.

↑ D. 5589, Mabel Island (NW.) N. 3° W., 2.8 miles (N. $4^{\circ} 12' 10''$ E. $118^{\circ} 38' 8''$), Sibuko Bay Borneo and vicinity. In 200 fathoms. September 29, 1909. Length 140 mm.

→ fathoms. September 29, 1909. Length 145 mm.

↑ ⁴⁴³¹ D. 5591. Mabel Island (NW.) N. 6° W., 3.1 miles (N. $4^{\circ} 11' 48''$ E. $118^{\circ} 38' 20''$). In 200 fathoms. September 29, 1909. Length 115 mm. Swallowed Myctophum spinosus 50 mm. long, which taken from stomach intact.

D. 5620. Makyan Island (S.) S. 44° E., 7 miles (N. $0^{\circ} 21' 30''$ E. $127^{\circ} 16' 45''$), Molucca Passage. In 358 fathoms. November 28, 1909. Length 125 mm.

In 288 fathoms. November 29, 1909. Length 148 mm.

842
5690. D. 5246. Luban Island (N.),
S. 58° W., 4.6 miles (N. $6^{\circ} 29' 15''$ E. $126^{\circ} 18' 45''$), Pacific Ocean, east coast of Mindanao.

→ May 15, 1908. Length 126 mm.

1628. D. 5590. Mabul Island (NW.),
N. 22° W., 4.3 miles (N. $4^{\circ} 10' 50''$ E. $118^{\circ} 39' 35''$),
Sibuko Bay, Borneo, and vicinity. In 310
fathoms. September 29, 1909. Length 145 mm.
→

3858. D. 5621. Makyan Island (S.), N.
 54° W., 3 miles (N. $0^{\circ} 15'$ E. $127^{\circ} 24' 35''$),
between Gilolo and Makyan. In 298 fathoms.
Length 160 mm.

4104. D. 5624. Makyan Island (S.), N.
 67° W., 8.9 miles (N. $0^{\circ} 12' 15''$ E. $127^{\circ} 29' 30''$).

In 288 fathoms. November 29, 1909.
Length 148 mm.

1385 and 1386. D. 5219. Mompog Island (NE.), N. $35^{\circ}30'W.$, 12.25 miles (N. $13^{\circ}21'E.$, $122^{\circ}18'45''$), between Marinduque and Luzon. In 530 fathoms. April 23, 1908. Length 132 to 208 mm. 2 examples.

2578. D. 5379. Mompog Island (E.), N. $30^{\circ}W.$ 37 miles (N. $12^{\circ}59'15''E.$, $122^{\circ}30'40''$), Marinduque and vicinity. In 920 fathoms. March 4, 1909. Length 136 mm.

4472 and 4473. D. 5214. Palanog Light, Masbate, S. $17^{\circ}W.$, 2.60 miles (N. $12^{\circ}25'18''E.$, $123^{\circ}37'15''$). In 218 fathoms. April 21, 1908. Length 91 to 174 mm. 2 examples.

1513. D. 5189. Pescador Island,
 N. 72° E., 3.30 miles (N. $9^{\circ}56'30''$ E. 123°
 $15'$), Tanon Strait, east coast of Negros.
 In 300 fathoms. April 1, 1908. Length
 171 mm.
 →

↑ D. 5227. Point Orizon, S. 44° E., 18.30
 miles (N. $12^{\circ}53'45''$ E. $121^{\circ}52'30''$), east of
 Mindoro. In 322 fathoms. May 5, 1908.
 Length 96 to 151 mm. 8 examples. These show a
 distinct variation in the size of the eye, a sex
 distinction noticed by Brauer.

7648. D. 5349. Point Tabonan, N. 85°
 E., 45.2 miles (N. $10^{\circ}54'$ E. $118^{\circ}26'20''$),
 Palawan Passage. In 730 fathoms.
 December 27, 1908. Length 232 mm.

5779. D. 5524. Point Tagolo Light,
 S. 34° W., 17 miles (N. $8^{\circ}58'7''$ E. $123^{\circ}32'45''$),
 northern Mindanao and vicinity. In 360
 fathoms. August 10, 1909. Length 66 mm.

1513. D. 5189. Pescador Island,
N. 72° E., 3.30 miles (N. $9^{\circ}56'30''$ E. 123°
 $15'$), Tanon Strait, east coast of Negros.

In 300 fathoms. April 1, 1908. Length
171 mm.
→

D. 5263. Point Origon, N. 85° E., 28.3
miles (N. $12^{\circ}38'30''$ E. $121^{\circ}37'30''$), off
eastern Mindoro. June 4, 1908. Length
71 mm.

7648. D. 5349. Point Tabonan, N. 85°
E., 45.2 miles (N. $10^{\circ}54'$ E. $118^{\circ}26'20''$),
Palawan Passage. In 730 fathoms.
December 27, 1908. Length 232 mm.

5779. D. 5524. Point Tagolo Light,
S. 34° W., 17 miles (N. $8^{\circ}58'7''$ E. $123^{\circ}32'45''$),
northern Mindanao and vicinity. In 360
fathoms. August 10, 1909. Length 66 mm.

885

1443. D. 5405. Ponson Island (N.),
S. 86° E., 8.5 miles (N. $10^{\circ} 49' 20''$ E. $124^{\circ} 24' 23''$),
Dupon Bay, Leyte and vicinity.
In 262 fathoms. March 17, 1909. Length
188 mm.

3370 to 3372. D. 5406. Ponson Island
(N.), S. 88° E. 10.2 miles (N. $10^{\circ} 49' 3''$ E. $124^{\circ} 22' 30''$).
In 298 fathoms. March 17, 1909.
Length 140 to 215 mm. 3 examples.

D. 5586. Sipadan Island (M.) West, 9.4
miles (N. $4^{\circ} 6' 50''$ E. $118^{\circ} 47' 20''$), Sibuko Bay,
Borneo and vicinity. In 347 fathoms.
September 28, 1909. Length 183 mm.

↓
→ ~~1847 and 1848. D. 5114. Vombro Island~~ length 170 mm.

1847 and 1848. D. 5114. Vombro Island
N. 36° E., 7.2 miles (N. $13^{\circ} 36' 11''$ E. $120^{\circ} 45' 26''$),
Balayan Bay and Verde Island Passage.
In 340 fathoms. January 20, 1908.
Length 130 to 145 mm.

885

1443. D. 5405. Ponson Island (N.),
S. 86° E., 8.5 miles (N. $10^{\circ} 49' 20''$ E. $124^{\circ} 24' 23''$),
Dupon Bay, Leyte and vicinity.
In 262 fathoms. March 17, 1909. Length
188 mm.

3370 to 3372. D. 5406. Ponson Island
(N.), S. 88° E. 10.2 miles (N. $10^{\circ} 49' 3''$ E. $124^{\circ} 22' 30''$).
In 298 fathoms. March 17, 1909.
Length 140 to 215 mm. 3 examples.

4539. D. 5583. Si Amil Island
(N.) N. 88° W. 3.2 miles (N. $4^{\circ} 19' 20''$ E. $118^{\circ} 56' 20''$),
Sibuco Bay, Borneo and vicinity. In 447
fathoms. September 27, 1909. Length 148 mm.
→

1847 and 1848. D. 5114. Vombriero Island
N. 36° E., 7.2 miles (N. $13^{\circ} 36' 11''$ E. $120^{\circ} 45' 26''$),
Balayan Bay and Verde Island Passage.
In 340 fathoms. January 20, 1908.
Length 130 to 145 mm.

→
↑ D. 5120. Sombrero Island, S. $79^{\circ}30'E$,
19.2 miles (N. $13^{\circ}45'30''E$, $120^{\circ}30'15''$),
Balayan Bay and Verde Island Passage.
In 393 fathoms. January 21, 1908. Length
64 to 154 mm. 17 examples.

D. 5287. Sombrero Island, N. $68^{\circ}E$, 11.25
miles (N. $13^{\circ}37'40''E$, $120^{\circ}39'$), China Sea,
vicinity southern Luzon. In 379 fathoms.
July 20, 1908. Length 39 to 142 mm.
5 examples.

Marinduque Island and vicinity. In 181
fathoms. February 23, 1909. Length 152 to 172 mm.

3126. D. 5373. Tayabas Light (outer),
N. $20^{\circ}E$, 15 miles (N. $13^{\circ}40'E$, $121^{\circ}31'10''$). In
338 fathoms. March 2, 1909. Length 172 mm.
One example, no data. Length 155 mm.

→ 2577. D. 5399. Tanguingui Island.
Light, N. 70° W., 22.8 miles (N. $11^{\circ} 21' 45''$ E. $124^{\circ} 05'$), north of Cebu. In 32
fathoms. March 16, 1909. Length 213 mm.

and 4505.

4504₁ D. 5368. Jayabas Light (outer),
N. 32° W., 21.8 miles (N. $13^{\circ} 35' 30''$ E. $121^{\circ} 48'$),
Marinduque Island and vicinity. In 181
fathoms. February 23, 1909. Length 152 to 172 mm.

3126. D. 5373. Jayabas Light (outer),
N. 20° E., 15 miles (N. $13^{\circ} 40'$ E. $121^{\circ} 31' 10''$). In
338 fathoms. March 2, 1909. Length 172 mm.

One example, no data. Length 155 mm.

23420 U.S.N.M. N. $44^{\circ}30'$ W. $57^{\circ}10'$,
 Banguearea Bank. In 250 fathoms.
 March 5, 1879. Schooner "Marion". Length
 320 mm. In poor preservation.

26165 U.S.N.M.

Newport, Rhode Island. Fish Hawk
 Station 892. Length 97 mm. Very poor.

27302 U.S.N.M. East coast of U.S.
 Found in lot of samples of bottom
 dredging. Dry mandible 25 mm. long.

32660 U.S.N.M. N. $37^{\circ}46'30''$ W. 74°

Albatross haul 1. March 22, 1883. Length
 136 mm.

35538 U.S.N.M. N. $39^{\circ}38'$ W. $71^{\circ}39'45''$.
Albatross Station 2202. August 19, 1884.
 Length 268 mm.

35556 U.S.N.M. N. $39^{\circ}30'30''$ W. $71^{\circ}44'30''$.
Albatross Station 2204. August 19, 1884.
 Length 210 mm.

38207 U.S.N.M.

Albatross Station 2729.

Length 195 mm., from mutilated head.

1 example (with 39249 U.S.N.M.).

Albatross Station 2738. Length 145? mm.
Very poor.

40069 U.S.N.M. Messina. Royal Zool.

Mus. Florence. September 1881. Length
59 to 200 mm. 4 examples.

1 example (with 54221 U.S.N.M.).

N. $52^{\circ}39'30''$ W. $132^{\circ}38'$. In 1588 fathoms.

Albatross Station 3342. September 3, 1890.
Length 168 mm.

74332 U.S.N.M.

Albatross Station 2549. Length 198 mm.
As Stomias ferox.

83867 U.S.N.M.

889

Albatross Station 2667. May 5, 1886.

Length 74 mm.

91400 U.S.N.M.

Albatross Station 20023. In 1100 meters.

November 21, 1919. Length 133 mm.

92118 U.S.N.M. N. 39° W. 71° , from stomach of sword fish taken in gully between Brown and Georges Banks, July 15 - August 5, 1931. Schooner "Eleanor". Capt. Thomas Brigham. Head 40 mm.

The following as Chauliodus macouni:

45372 U.S.N.M. N. $51^{\circ} 23'$ W. $130^{\circ} 34'$.

In 876 fathoms. Albatross Station 2860. August 31, 1888. Length 91 mm. Type.

46517 U.S.N.M. N. $47^{\circ} 29' 30''$ W. $125^{\circ} 43'$.

Albatross Station 3070. June 2, 1889. Length 192 mm.

48612 U.S.N.M. N. $55^{\circ}26'W$. $155^{\circ}26'$.

In 695 fathoms. Albatross Station 3340.

August 29, 1890. Length 75 mm.

53945 U.S.N.M. N. $51^{\circ}23'W$. $130^{\circ}34'$.
Alaska. In 876 fathoms. Albatross
Station 2860. August 31, 1888. Length 170
mm. Very poor.

53946 U.S.N.M. N. $37^{\circ}28'W$. 123° . In
276 fathoms. Albatross Station 3479.
April 27, 1893. Length 95 mm.

54622 U.S.N.M. N. $43^{\circ}46'W$. $124^{\circ}57'$.

In 277 fathoms. Albatross Station 2890.
October 19, 1888. Length 150 mm.

60125 U.S.N.M. near Funtar Bay,
Lynn Canal, Alaska. In 350 fathoms.
Albatross Station 4257. July 23, 1903.
Alaska Salmon Investigation. Length 92 mm.

60396 U.S.N.M. Iaha Bay, Behm
Canal, south east Alaska. In 113 to 82 fathoms.
Albatross Station 4231. July 7, 1903.
Alaska Salmon Investigation. Length 100 mm.

891

60607 U.S.N.M. near Funter Bay,
Lynn Canal. Albatross Station 4258.

In 300 to 313 fathoms. July 23, 1903.
Alaska Salmon Investigations. Length
50 mm. to body broken off ends of
depressed ventrals.

60797 U.S.N.M. near Yes Bay, Behm
Canal. In 130 to 193 fathoms. Albatross
Station 4235. July 8, 1903. Alaska Salmon
Investigations. Length 158 mm.

74719 U.S.N.M. Staritschko Island.
In 300 fathoms. Albatross Station 4797.
June 20, 1906. Length 60 mm.

77461 U.S.N.M.

Albatross Station 4393.
Length 190 mm.

1904.

77462 U.S.N.M.

Albatross Station 4515.
Length 152 mm.

1904.

77463 U.S.N.M.

Albatross Station 4544.

Length 100 mm.

51464 U.S.N.M. Sagami Bay, Japan.

In 120 to 265 fathoms. Albatross

Station 3697. Length 196 mm. Type
of Chauliodus ummelas.

Chauliodus danal Regan and Trewavas
Chauliodus danal Regan and Trewavas,
Danish Dana Exped. Oceanogr. Rep.,
no. 5, May 30, 1929, p. 34, pl. 7. Atlantic,
Caribbean Sea, Indian Ocean, south of
New Guinea, north of New Guinea, 50 to
7000 meters. — Horman, Discovery Rep.,
vol. 2, 1930, p. 308 (S. 32° to 33° W. 8° to
E. 6° to 9° , 650 to 1000 meters).

Depth $6\frac{2}{5}$? ; head $4\frac{3}{4}$? , width
 $3\frac{2}{3}$? Snout 6? in head from
 snout tip ; eye $4\frac{2}{3}$? , greater than
 snout or interorbital ; maxillary
 reaches preopercle ridge, $1\frac{1}{8}$? in head
 from snout tip ; 4 pairs of upper
 canines and 8 lower pairs ; interorbital
 $4\frac{3}{4}$? in head, level in front and
 abruptly declivous behind well as
 concave medianly. Gill rakers?

Scales all fallen and pockets
 scarcely defined, about 43 in
 median lateral series to caudal base.

Large antorbital photophore distinct
 at lower front eye edge, though

only about 8 or 10 feeble impressions of the infraorbital crescentic rim of minute photophores; large photophore above maxillary opposite eye center; upper lateral series with 16 between pectoral and ventral fins, 22 between ventral and anal, thence 9 to caudal.

D. 5, first ray long and filamentous or $2\frac{3}{4}$ in combined head and body to caudal base; adipose fin not defined anteriorly but apparently would begin at least opposite anal origin, posteriorly not extended far as

hind anal edge; A II, 10, first
branched ray 3? in head from
snout tip; caudal $1\frac{1}{2}$?, forked,
lobes sharply pointed; least depth
of caudal peduncle $1\frac{2}{3}$ in eye;
pectoral $1\frac{1}{2}$? in head from snout
tip; ventral 1?

Brownish, upper and lower
margins of body blackish, also ^{body at fin}
bases. Twelve dark ill-defined
cross bands, about wide as pale
interspaces. Fins whitish. Iris
gray.

89914 U. S. N. M. N. 37° W. $67^{\circ}12'$.

897

In 1500 meters. October 13, 1913.

C. O'D. Iselin. Museum of Comparative
Zoology. Length 70? mm.

Chauliodus barbatus Garman

Chauliodus barbatus Garman, Mem. Mus.
Comp. Zool., vol. 24, 1899, p. 271, pl. K, figs.

2 - 2a. N. $6^{\circ}22'20''$ W. $81^{\circ}52'$, 465 fathoms;

N. $2^{\circ}34'$ W. $82^{\circ}29'$, 1201 fathoms; N. $3^{\circ}9'$ W. 82°

$8'$, 1132 fathoms. — Brauer, Deutsch. Tiefsee

Exped. Valdivia, vol. 15, Tiefsee - Fische,

1906, p. 40 (diagnosis in key). — Regan

and Trewavas, Danish Dana Exped.

Oceanogr. Rep., no. 5, May 30, 1929, p. 38

(Gulf of Panama, 1500 to 3500 meters).

Polymetne illustris McCulloch
Polymetne illustris McCulloch, Biol.
Results Endeavour, vol. 5, pt. 4, June 8,
1926, p. 167, pl. 45, fig. 1. Great Australian
Bight in E. Long. $127^{\circ} 40'$, south west of
Eucla, in 200 fathoms; south of Gabo
Island, Victoria, in 200 fathoms.